AMENDMENTS TO THE CLAIMS

Claims 1-15. (Cancelled)

16. (New) A device for increasing surface smoothness of a turned surface, the device comprising a control system comprising a control unit and an actuator connectible to the control unit and connectible with a tool holder, the actuator being adapted to impart a vibrating motion in a lateral direction to the tool holder wherein the tool holder moves in a vibrating manner alternatingly in and against a direction of feed when the device is mounted in a turning lathe, the actuator being spaced from a center, longitudinal axis of the tool holder.

17. (New) The device as claimed in claim 16, wherein the actuator comprises an active element which is embeddable in a body of the tool holder.

18. (New) The device as claimed in claims 16 or 17, wherein the control system comprises a vibration sensor connectible to the control unit and connectible with the tool holder, the vibration sensor detecting vibrations of the tool holder in the lateral direction, and the control unit controlling vibrating motion by controlling the actuator according to sensor signals from the vibration sensor.

19. (New) The device as claimed in claim 16, wherein the actuator is at least one piezoceramic element which is movable in a direction parallel to the center, longitudinal axis of the tool holder in order to create side-to-side vibration motion in the tool holder.

20. (New) A turning tool holder comprising an actuator for imparting a vibrating motion in a lateral direction to the turning tool holder, the turning tool holder being moved in a vibrating manner alternatingly in and against a direction of feed when the tool holder is mounted in a turning lathe, the actuator being spaced from the center longitudinal axis of the tool holder.

21. (New) The turning tool holder as claimed in claim 20, wherein the actuator comprises an active element embedded in a body of the turning tool holder.

22. (New) The turning tool holder as claimed in claim claims 20 or 21, wherein the actuator comprises at least one pair of active elements, the active elements included in the pair being oppositely arranged on each side of the center, longitudinal axis of the tool holder.

23. (New) The turning tool holder as claimed in claim 20, further comprising a vibration sensor embedded in a body of the turning tool holder.

24. (New) The turning tool holder as claimed in claim 20, wherein the actuator is at least one piezoceramic element which is movable in a direction parallel to the center, longitudinal axis of the tool holder in order to create side-to-side vibration motion in the tool holder.

25. (New) A turning lathe comprising a tool holder and an actuator connected with the tool holder, the actuator imparting a vibrating motion in a lateral direction to the tool holder in order to make the tool holder move in a vibrating manner alternatingly in and against a direction of feed, the actuator being spaced from a center, longitudinal axis of the tool holder.

26. (New) The turning lathe as claimed in claim 25, further comprising a control system, the control system comprises a control unit and a vibration sensor connected to the control unit and connected with the tool holder, the actuator being connected to the control unit, the vibration sensor detects vibrations of the tool holder in the lateral direction, the control unit controlling

vibrating motion by controlling the actuator according to sensor signals from the vibration sensor.

27. (New) The turning lathe as claimed in claims 25 or 26, wherein the actuator comprises an active element which is embedded in a body of the tool holder.

28. (New) The turning lathe as claimed in claim 27, wherein the active element is a piezoceramic element which is movable in a direction parallel to the center, longitudinal axis of the tool holder in order to create side-to-side vibration motion in the tool holder.

29. (New) A method for increasing surface smoothness of a turned surface, comprising the steps of:

controlling vibrations of a tool holder during turning,

imparting a vibrating motion in a lateral direction to the tool holder in order to make the tool holder move in a vibrating manner alternatingly in and against a direction of feed, and

providing an actuator in the tool holder, the actuator being spaced from a center, longitudinal axis of the tool holder and causing the vibrating motion.

30. (New) The method as claimed in claim 29, further comprising the step of controlling in a feed-back manner the vibrating motion by detecting lateral vibration of the tool holder and controlling the actuator according to the lateral vibration.

31. (New) The method as claimed in claim 29, further comprising the step of adjusting the vibrating motion in response to feeding speed.

32. (New) The method as claimed in claim 29, further comprising the steps of using a piezoceramic element as the actuator and moving the actuator in a direction parallel to the center, longitudinal axis of the tool holder.